CLAIMS:

1. A method for the preparation of cells of ectodermal or endodermal lineages, of high purity which method includes

providing

a source of pluripotent cells;

a source of a mesodermal suppression composition including cellular fibronectin (cFN); and

a suitable culture medium; and

culturing the pluripotent cells in the culture medium in the presence of the mesodermal suppression composition for a time sufficient to permit differentiation to ectoderm cells.

2. A method according to claim 1, wherein the cells of ectoderm lineage are selected from neurectoderm or surface ectoderm, or their partially or terminally differentiated progeny.

3. A method according to claim 1, wherein the cells of endoderm lineages are selected from primitive endoderm, visceral endoderm or parietal endoderm, or their partially or terminally differentiated progeny.

4. A method according to claim 1, wherein the source of pluripotent cells is selected from the group consisting of *in vivo* or *in vitro* derived ICM/epiblast, *in vivo* or *in vitro* derived primitive ectoderm, primordial germ cells, embryonic gonadal (EG) cells, teratocarcinoma cells, embryonic carcinoma (EC) cells, early primitive ectoderm-like (EPL) cells, and pluripotent cells derived by dedifferentiation or by nuclear transfer.

5. A method according to claim 4, wherein the source of pluripotent cells is early primitive ectoderm-like (EPL) cells.

6. A method according to claim 1, wherein the mesodermal suppression composition source is selected from the group consisting of cellular fibronectin

(cFN), MEDII, a conditioned medium, or an extract therefrom containing cellular fibronectin (cFN).

7. A method according to claim 1, wherein the pluripotent cells are cultured in the culture medium for approximately 2 to 6 days.

8. A method according to claim 1 where in the culture medium is DMEM containing a high glucose content.

9. A method for the preparation of cells of ectodermal or endodermal lineages, of high purity which method includes

providing

a source of pluripotent cells;

a source of mesodermal suppression composition including cellular fibronectin (CFN);

a suitable culture medium; and

a growth factor; and

culturing the pluripotent cells in the culture medium in the presence of the cFN source and growth factor.

10. A method according to claim 9 wherein the cell produced is a neurectoderm cell.

11. A method according to claim 10, wherein the growth factor is from the FGF family.

12. A method according to claim 11, wherein the growth factor is selected from aFGF, bFGF and FGF4.

13. A method according to claim 9, wherein the growth factor is selected from bFGF and FGF4.

14. A method according to claim 13, wherein the growth factor is bFGF.

15. A method according to claim 11, wherein the FGF growth factor is present in a concentration in the range of approximately 1 to 100 ng/ml.

16. A method according to claim 15, wherein the concentration of the growth factor is in the range of 5 to 50 ng/ml.

17. A method according to claim 14, wherein concentration of bFGF is approximately 10 ng/ml.

18. A cell of ectodermal or endodermal lineages produced by a method according to claim 1.

19. A cell according to claim 18 wherein the cell is selected from the group consisting of a neurectoderm cell, a partially differentiated neurectoderm cell, a terminally differentiated neuronal cell, a partially differentiated neural crest cell, a terminally differentiated neural crest cell, a partially differentiated glial cell, or a terminally differentiated glial cell, a visceral endoderm cell, or a parietal endoderm cell.

20. A cell according to claim 19 wherein the cell is a neurectoderm cell.

21. Use of a neurectoderm cell according to claim 20 in nuclear transfer.

22. Use of a neurectoderm cell according to claim 20 in the production of cells, tissues or components of organs for transplant.

23. Use of a neurectoderm cell according to claim 20 in human cell therapy to treat neuronal diseases.

24. Use of a neurectoderm cell according to claim 20 in human gene therapy to treat neuronal diseases.

25. A method for the treatment of neuronal diseases, including Parkinson's disease, which method includes treating a patient requiring such treatment with neurectoderm cells according to claim 20, or their partially of terminally differentiated progeny, through human, or animal cell or gene therapy.